

IN THE CLAIMS:

1. (*currently amended*) A method for characterizing ingress events in a network environment having return path communications being accomplished in a plurality of frequency bands channels defining the complete return path frequency range, the method comprising the steps of:

(a) detecting one or more ingress events in the return path over a pre-determined time period;

(b) marking the frequency ~~band~~ channel wherein each ingress event exceeds a pre-determined threshold;

(c) marking each time interval within the pre-determined time period in which the ingress events exceeds a pre-determined threshold;

(d) creating a time/frequency map of the ingress events, wherein the time/frequency map contains the results of steps (b) and (c);

(e) summing the results of the marking process of step (c) across a plurality of frequency bands channels forming the entire frequency range within a specific time interval and comparing the sum to a predetermined wideband ingress threshold to determine the presence of a wideband ingress event.

2. (*original*) The method of claim 1 wherein the time/frequency map is characterized by marking each ingress event that exceeds the pre-determined threshold with a "1".

3. (*previously presented*) The method of claim 1, further comprising the steps of:

(f) evaluating the time/frequency map, and

(g) mitigating the return path ingress, based on the evaluation of the time/frequency map.

4. (*previously presented*) The method of claim 3 wherein step (g) is accomplished by attenuating the return path signal.

5. (*original*) The method of claim 4 wherein the attenuation is performed based on a power-level equalization algorithm.

6. (*previously presented*) The method described in claim 3 wherein step (g) is accomplished by removing the return signal path.

7. *cancelled*

8. *cancelled*

9. *(previously presented)* The method of claim 1, further comprising the steps of:

(i) labeling the ingress event as a narrowband ingress event if the sum obtained in step (f) is below a pre-determined narrowband ingress threshold.

10. *(previously presented)* The method of claim 1, further comprising the steps of:

(j) summing the results of the marking process of step (c) across a plurality of time intervals within a specific frequency band.

11. *(previously presented)* The method of claim 10, further comprising the step of:

(k) labeling the ingress event as a narrowband ingress event when the sum obtained in step (f) exceeds a pre-determined narrowband ingress threshold.

12. *(previously presented)* The method of claim 10, further comprising the step of:

(l) labeling the ingress event as wideband ingress when the sum obtained in step (e) is below a pre-determined wideband ingress threshold.

13. *(original)* The method of claim 1 wherein the step (a) occurs at the head-end.

14. *(original)* The method of claim 1 wherein the step (a) occurs substantially near the subscriber location.

15. *(original)* The method of claim 1 wherein the step (a) occurs at a test point in the network.

16. *(original)* The method of claim 1 wherein the step (a) occurs at a head-end of the network.

17. *(currently amended)* The method of claim 1 wherein the step (a) utilizes ingress measurements extending across the ~~return-frequency-band~~ entire frequency range.

18. - 20. *cancelled*

21. *(currently amended)* The method of claim 1 wherein the step (a) comprises the steps of:

(1) measuring an average return path signal power in the return frequency ~~band~~ channel;

(2) comparing the average return path signal power to a detection threshold; and

(3) determining the presence of an ingress event in the return frequency ~~band~~ channel based on the result of the comparison.

22. (currently amended) The method of claim 1 wherein step (a) comprises the steps of:

(1) retrieving information on channel usage to distinguish active ~~sub~~-bands from inactive ~~sub~~-bands; and

(2) detecting the presence of ingress in the inactive ~~sub~~-bands of the return path.

23. (original) The method of claim 22 wherein the information on channel usage is retrieved from the head-end.

24. (original) The method of claim 22 wherein channel usage is detected automatically at a location substantially near the subscriber location.

25. (currently amended) The method of claim 1 wherein step (a) comprises the steps of:

(1) retrieving information on channel usage to distinguish active ~~sub~~-bands from inactive ~~sub~~-bands; and

(2) detecting the presence of ingress in the active ~~sub~~-bands of the return path.

26. (original) The method of claim 25 wherein the information on the channel usage is retrieved from the head-end.

27. (original) The method of claim 25 wherein the channel usage is detected automatically at a location substantially near the subscriber location.

28. (original) The method of claim 27 wherein the automated detection of channel usage comprises the steps of:

(1) estimating a power spectrum density (PSD) of a return path signal;

(2) correlating the PSD with a set of stored PSDs;

(3) determining a frequency at peak correlation; and

(4) creating a frequency ~~band~~ channel in use.

29. (original) The method described in claim 25 wherein the active ~~band~~ channel is in use by an in-home device.

30. (original) The method described in claim 25 wherein the active ~~band~~ channel is in use by a communications gateway.